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Abstract

The majority of students receiving special education services for emotional disturbance (ED) receive a significant amount of instruction in general education classrooms, which emphasizes curriculums based on college and career readiness standards. In turn, those teachers who provide instruction to students with ED in inclusive settings are responsible for using evidence-based practices (EBPs) for those teaching situations in which they exist to meet free appropriate public education (FAPE) mandates. However, the identification of EBPs is a necessary pre-condition to eventual school adoption and teacher use of such practices. In this investigation, we completed a synthesis of syntheses to (a) determine the degree to which academic intervention research has focused on students with ED in general education classrooms and (b) identify practices that are effective at

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improving the academic performance of students with ED in these settings. Overall, few studies were identified. Of those studies identified, half did not disaggregate outcomes for students with ED. A quality indicator coding based on the What Works Clearinghouse (WWC) design standards revealed that no studies with disaggregated outcomes permitted causal inferences. Implications for school practice and areas for future research are discussed.

Keywords

emotional and behavioral disorders, inclusion, academic achievement, FAPE, Least Restrictive Environment

The Least Restrictive Environment (LRE) provision of special education law mandates that students with disabilities be educated with their nondisabled peers in general education settings to the maximum extent appropriate. This emphasis on general education placement, or inclusion (i.e., receiving instruction in general education with the necessary specialized supports and services; Mastropieri & Scruggs, 2007), is due in part to a desire to create diverse school communities in which differences are valued and to address potential for negative effects from segregated or substantially separate educational placements (Blankenship, Boon, & Fore, 2007; Bristol, 2015; UN General Assembly, 1989). Proponents of inclusion also point to greater access to general education curriculums (Mastropieri & Scruggs, 2001), improved adaptive behaviors and peer relationships (Kliewer & Biklen, 2001), and more positive transition outcomes (Wagner, Newman, Cameto, & Levine, 2006). Presently, approximately 63% of students with disabilities between the ages of 6 and 21 spend 80% or more of the school day in general education classrooms (U.S. Department of Education, 2015). Furthermore, another 18.6% spend between 40% and 79% of the school day in inclusive classrooms. Although the majority of students eligible for special education services receive a significant amount of instruction in general education settings, inclusive instruction presents significant challenges.

Challenges of Inclusive Education

School-based practitioners must employ practices and supports that are effective to insure that students with disabilities benefit from inclusive instruction (Brigham, Ahn, Stride, & McKenna, 2016; Solis, Vaughn, Swanson, & McCulley, 2012). Furthermore, students with disabilities should make progress academically as well as behaviorally when served in inclusive settings

(Brigham et al., 2016; Yell & Bateman, 2017). However, research suggests that some general education teachers have difficulty adapting core instruction or have limited expertise to teach students with specialized needs (Niesyn, 2009; Wehby, Lane, & Falk, 2003). These challenges occur within a context in which students with and without disabilities must master complex concepts and skills and achieve adequate performance on high stakes tests (Kozik, Cooney, Vinciguerra, Gradel, & Black, 2009; Mastropieri & Scruggs, 2001). Furthermore, research suggests that the allocation of sufficient resources is essential to the effectiveness of inclusive instruction (Solis et al., 2012). In sum, concerns regarding teacher skills, student needs, and allocation of resources coupled with academic expectations driven by college and career readiness standards highlight the need for teacher training and school practice to be informed by evidence-based practices (EBPs).

Federal mandates and policies (e.g., Every Student Succeeds Act [ESSA], 2015; Individuals With Disabilities Education Improvement Act, 20 U.S.C. §1400 [IDEA], 2004) emphasize the use of EBPs for those teaching situations in which they have been identified. With this goal in mind, expert panels such as the What Works Clearinghouse (WWC; U.S. Department of Education, Institute of Education Sciences, WWC, 2016) have been established to provide recommendations for designing intervention studies that permit causal inferences between the introduction of independent variables and changes in dependent variables. Through the accumulation of rigorous research, EBPs are identified and information on such practices is disseminated to various stakeholders to promote their integration into school practice. In regard to inclusive instruction, schools are responsible for using EBPs when teaching students with disabilities in general education classrooms (Solis et al., 2012). This proves true for meeting a student's academic and behavioral needs. However, placement in general education is not synonymous with access to the specialized instruction and supports that are necessary for students with disabilities to make effective progress in school (see Brigham et al., 2016; Kauffman, 2015; MacMillan, Gresham, & Forness, 1996). Educators assigned to inclusive settings must have expertise in a continuum of EBPs to provide students with disabilities meaningful opportunities to develop skills. This need is particularly salient for the inclusion of students receiving special education services for emotional disturbance (ED).

Inclusion of Students With ED

Approximately 46% of students with ED spend 80% or more of the school day in general education classrooms (U.S. Department of Education, 2015). Furthermore, an additional 17.57% spend 40% to 79% of the school day in

these settings. This tendency for Individualized Education Program (IEP) teams to place students with ED in general education settings poses a significant challenge for practitioners: Students with emotional and behavior disorders (EBD) have significant behavioral and learning difficulties that require the provision of high quality instruction and specialized services (see Ciullo, Ortiz, Al Otaiba, & Lane, 2016; Farmer, 2013; Kauffman & Bader, 2017; Maggin, Wehby, Farmer, & Brooks, 2016). However, students with EBD are infrequently provided services that address both behavioral and academic needs (Gage, Lewis, & Adamson, 2010). Research also suggests that general education teachers believe they are inadequately trained to teach these students (Gunter, Kenton-Denny, & Venn, 2000; Levy & Chard, 2001; Niesyn, 2009). Although EBPs have long been emphasized (see MacMillan et al., 1996), a number of barriers to their use have been reported including insufficient knowledge and reliance on practices without an empirical basis (Burns & Ysseldyke, 2009; Flower, McKenna, & Haring, 2017; Guckert, Mastropieri, & Scruggs, 2016). The explicit identification of EBPs for students with ED who receive instruction in general education classrooms is a necessary prerequisite to an expectation of teacher use within the diverse needs of inclusionary classrooms. Therefore, rigorous research is necessary to inform school decision-making and inclusive practices (Garwood, in press; McKenna, Kim, Shin, & Pfannensteil, 2017; Simpson, 2004). Teachers assigned to general education settings (e.g., general education and special education) must be able to adapt, design, and deliver instruction that is beneficial to students with disabilities served in inclusive settings (Salend & Duhaney, 1999). Although this is a significant challenge for teachers of students with ED (Kauffman, Bantz, & McCullough, 2002), efforts should be based on practices with evidence of effectiveness (Skerbetz & Kostewicz, 2013).

Study Purpose

The purpose of this study was to investigate and identify the current state of EBPs for students with ED in inclusionary settings by providing an overview of the extent to which academic intervention research for students with ED has focused on instruction in inclusive settings. We also sought to identify promising academic instructional practices for use with students with ED who are placed in general education classrooms. We focused exclusively on students receiving special education services for ED or problem behaviors consistent with ED because we were interested in identifying practices for those students with such significant behavioral and learning difficulties that they were deemed eligible for specialized services and supports. Specifically, we sought

to identify effective practices for those students with ED who receive a significant amount of academic instruction in inclusionary classrooms as instruction in these settings tends to be based on college and career readiness standards (Ciullo et al., 2016). At this time, there appears to be no recent synthesis of academic intervention research for students with ED in inclusive settings.

Last, the recent unanimous Supreme Court decision in *Endrew F. v. Douglas County School District* (2017) has provided clarification regarding FAPE mandates: IEPs must be designed for students to make effective progress in school given their individual circumstances. With regard to students with ED placed in general education classrooms, it may be reasonably assumed that IEPs should insure students receive services that permit them to earn passing grades in these classes (Yell & Bateman, 2017). This decision highlights the need to identify evidence-based instructional practices for improving the academic achievement of students who are served in inclusive settings. The current investigation was guided by the following research questions:

Research Question 1: To what extent has intervention research investigated the effects of inclusive instructional practices on the academic outcomes of students with ED?

Research Question 2: According to a WWC design standards evaluation, what instructional practices are effective for improving the academic achievement of students receiving special education services for ED who are educated in general education classrooms?

Method

We completed a synthesis of syntheses to address our research questions. A multistep procedure was followed to identify and evaluate intervention studies for students with ED in Grades K-12 that were conducted in general education classrooms and included academic dependent variables. This process included (a) an electronic database and hand search of selected journals to identify published meta-analyses, reviews, and syntheses of academic focused intervention studies for students with and at risk for EBD; (b) an ancestral search of syntheses to identify intervention studies relevant to this investigation; and (c) a quality indicator coding using relevant WWC study design standards.

Search Procedures

First, we conducted an electronic literature search of the years 2004 to 2017 using Academic Search Complete, PsychInfo, and ERIC to identify systematic reviews (e.g., reviews, syntheses, or meta-analyses) of instructional

practices for students with ED. We chose to conduct our search from 2004 because federal special education law and its emphasis on students with disabilities being educated in the LRE were reauthorized that year. The following Boolean phrase was used in the electronic search: “emotional disturbance or emotional disorder or behavior disorder or challenging behavior or problem behavior” and “reading or comprehension or fluency or vocabulary or decoding or writing or written language or mathematics or science or social studies or academics.” This initial search revealed 2669 articles for review, which consisted of reading the title and abstract. We then performed a hand search of the following journals from 2004 to 2017 to identify relevant syntheses not discovered during the electronic search: *Behavioral Disorders*, *Behavior Modification*, *Education and Treatment of Children*, *Exceptional Children*, *Journal of Emotional and Behavioral Disorders*, *Preventing School Failure*, and *Remedial and Special Education*. These journals were selected due to the frequency in which they publish studies involving students with or at risk of EBD and systematic reviews of the literature as well as their standing within the field of special education.

In our search, we focused on identifying systematic reviews, because they underwent peer review, employed comprehensive search and article selection procedures, are commonly performed to identify EBPs, and were believed to be sufficient to provide a broad overview of academic intervention research conducted in inclusive settings. A similar procedure (e.g., a synthesis of syntheses) has been used to report on effective practices in special education (Lloyd, Forness, & Kavale, 1998), findings from intervention research for students with learning disabilities (LD; Vaughn, Gersten, & Chard, 2000), and to identify trends in inclusive education (Solis et al., 2012). Upon completion of the aforementioned search procedures, 24 articles were identified for possible selection and were read in their entirety.

Selection of Systematic Reviews

Each article selected for further review was read in its entirety to determine if it met the following criteria. First, the article had to be a systematic review of intervention studies involving students with or at risk of EBD or ED; reviews focusing on practices in substantially separate settings were excluded (e.g., Garwood, Brunsting, & Fox, 2014). Reviews synthesizing nonintervention research (e.g., qualitative studies) were included as long as interventions studies were also included in the analysis. Second, the article had to focus on academic outcomes (e.g., reading comprehension), academic instruction (e.g., literacy skills, self-regulated strategy development for writing), or

content area learning outcomes (e.g., science). Third, the article had to include intervention studies conducted in the United States; studies focusing on practices in international schools were excluded. Practices in international schools were excluded because of different operational definitions and procedures for determining special education eligibility than those used in the United States. Fourth, the article needed to be published in a peer-reviewed journal in English. Following application of the selection criteria, 17 systematic reviews were identified for ancestral search. Initial reliability for article selection was 100%. Figure 1 summarizes the procedure used to identify systematic reviews relevant to this investigation.

Identification of Intervention Studies

An ancestral search of each systematic review was performed to identify intervention studies in which students with ED were taught and assessed in general education settings. We focused exclusively on this type of intervention study because they closely mirror the act of teaching and assessing students with ED in inclusive classrooms. Furthermore, we sought to identify intervention studies with academic outcomes because mastering academic content and skills related to college and career readiness standards is a common focus of instruction in general education settings (Ciullo et al., 2016). Specifically, we were interested in identifying promising practices for promoting the academic achievement of students with ED in inclusive settings as well as important areas for future research.

Studies identified in the ancestral search for descriptive coding met the following criteria. First, the study needed to employ a single-case design, quasi-experimental, or experimental design. These study designs were selected based on their potential to permit causal inferences. Second, the study needed to include at least one student who received special education services for ED, Serious Emotional Disturbance (SED), EBD, or behavior disorder (BD). Students with OHI (Other Health Impairment) or with a condition commonly served under the disability category OHI (attention deficit disorder [ADD] and attention deficit hyperactivity disorder [ADHD]) were excluded unless the student was also identified with ED, SED, EBD, or BD (e.g., a comorbid disability). Students with an intellectual disability (ID) were excluded. Third, the study needed to include an independent variable that was delivered in a general education classroom. Teacher- and peer-mediated independent variables were eligible for inclusion. Fourth, academic outcome as dependent variables (e.g., reading, writing, content knowledge, etc.) were reported at the student level. Upon application of the selection criteria,

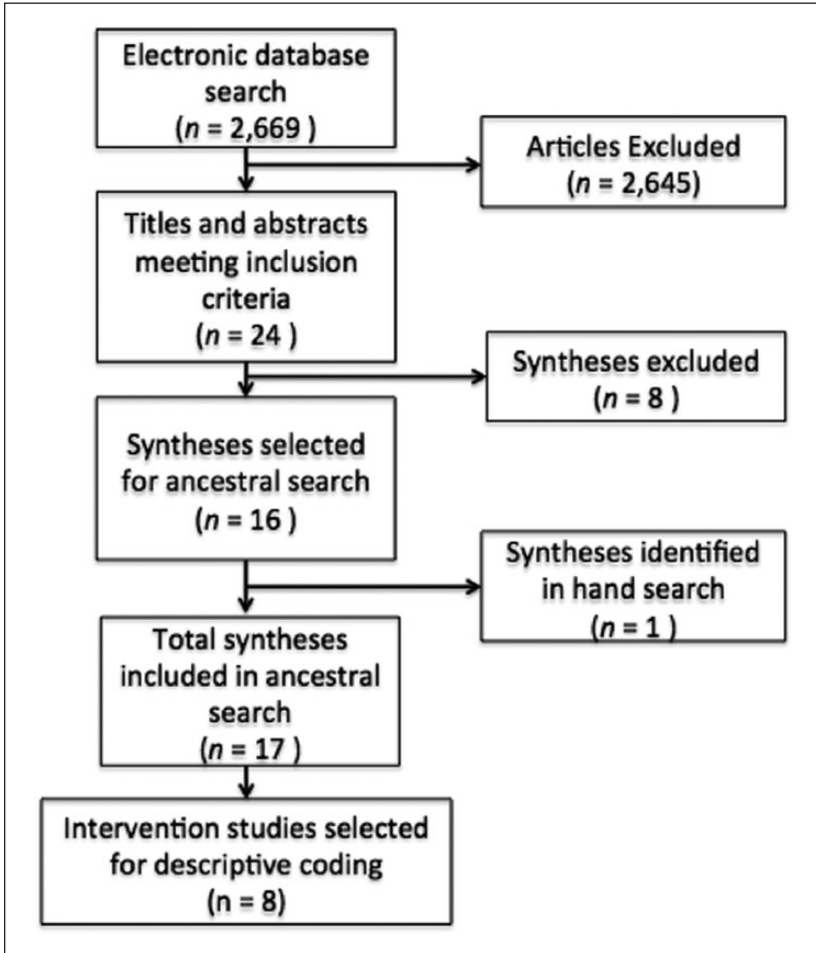


Figure 1. Identification of relevant syntheses and intervention studies.

eight intervention studies from the 17 systematic reviews were selected for descriptive coding.

Prior to intervention study selection, coders were trained in operational definitions related to each criteria and procedures for completing the coding sheet. Coders also practiced applying the selection criteria with two intervention studies not involving students with ED. Initial reliability for intervention study selection was 97.8%, with all areas of disagreement discussed until a consensus was obtained.

Descriptive and Quality Indicator Coding

Intervention studies meeting the aforementioned criteria were coded for the following information: participant and setting, intervention characteristics, interventionist, dependent variables, and dependent variables and student outcomes. Coders were trained in operational definitions and procedures for completing the coding sheet prior to data collection. As part of this process, coders read and extracted information from two single-case intervention studies not involving students with ED. Initial reliability for descriptive coding was 92.8%, with areas of disagreement discussed until 100% agreement was obtained. Descriptive coding was then aggregated and summarized.

Intervention studies with disaggregated outcomes for students with ED were then coded according to the relevant WWC Standards (U.S. Department of Education, Institute of Education Sciences, WWC, 2016). Quality indicator coding was performed to evaluate the rigor of intervention studies (e.g., ability to make causal inferences between the introduction of the independent variable and changes in dependent variables) and to identify promising practices as indicated by high quality research. We elected to use the WWC standards because it is well established, has been extensively field tested, and is frequently used in systematic reviews of interventions for students with challenging behavior (see Maggin, Chafouleas, Goddard, & Johnson, 2011; McKenna et al., 2017; Roberts, Solis, Ciullo, McKenna, & Vaughn, 2015).

Prior to design standard coding, coders were trained in procedures for completing the coding sheet and operational definitions. Coders also practiced applying the design standards to two single-case studies that did not include students with ED as participants. Initial design standard coding was 96.4%, with areas of disagreement discussed until consensus was achieved.

Results

Seventeen systematic reviews meeting article selection criteria were identified. Three (17.6%) focused on writing (Ennis & Jolivet, 2014; Losinski, Cuenca-Carlino, Zablocki, & Teagarden, 2014; Sreckovic, Common, Knowles, & Lane, 2014), four (23.5%) on reading (Benner, Nelson, Ralston, & Mooney, 2010; Burke, Boon, Hatton, & Bowman-Perrott, 2015; McKenna et al., 2017; Rivera, Al-Otaiba, & Koorland, 2006), one (5.8%) on literacy outcomes (Griffith, Trout, Hagaman, & Harper, 2008), five (29.4%) on mathematics (Hodge, Riccomini, Buford, & Herbst, 2006; Mulcahy, Krezmien, & Travers, 2016; Mulcahy, Maccini, Wright, & Miller, 2014; Ralston, Benner, Tsai, Riccomini, & Nelson, 2014; Templeton, Neel, & Blood, 2008), one (5.8%) on science performance (Therrien, Taylor, Watt, & Kaldenberg, 2014),

two (11.6%) on peer-mediated interventions with academic outcomes (Spencer, 2006; Ryan, Reid, & Epstein, 2004), and one (5.8%) on teacher mediated interventions with academic outcomes (Pierce, Reid, & Epstein, 2004). We were unable to identify any syntheses focusing on social studies interventions or dependent variables. Descriptive information for identified systematic reviews are reported in Table 1.

Intervention Studies

Seventeen systematic reviews were synthesized to identify intervention studies in which students with ED were instructed and assessed in a general education classroom. A total of 181 unique articles (e.g., total with duplicate studies removed) were included in the 17 syntheses. Of the 181 articles, only eight (4.4%) investigated the effects of interventions on the academic performance of students with ED in inclusive settings. The remaining intervention studies tended to investigate the effects of Tier 2 or Tier 3 supports or practices in substantially separate settings (e.g., self-contained classrooms, substantially separate schools and programs). Of the eight intervention studies meeting selection criteria, two (25%) were conducted in elementary settings and six (75%) in secondary settings.

Quality Indicator Evaluation

To gain an understanding of the extant research identified in this investigation, we coded each of the eight intervention studies that met selection criteria. Descriptive information for each study is reported in Table 2. WWC coding for each study with disaggregated academic outcomes for students receiving special education services for ED or its equivalent are reported in Table 3. Of the eight studies, three (37.5%) investigated the effects of peer-mediated interventions (Bell, Young, Blair, & Nelson, 1990; Maheady, Sacca, & Harper, 1987, 1988), two (25%) reading interventions (Rafferty, 2012; Wehby, Lane, & Falk, 2005), two (25%) science instructional practices (Mastropieri et al., 1998; Mastropieri et al., 2006), and one (12.5%) mathematics instruction (Prater, Hogan, & Miller, 1992). It should be noted that student participants in Wehby et al. (2005) also received support in a self-contained classroom during part of the school day.

Twenty students receiving special education services for ED or its equivalent and 42 students with mild disabilities (e.g., LD or BD) participated in the eight studies. Six (75%) studies used school-based professionals (e.g., general or special education teachers, paraprofessionals, etc.) as interventionists (Bell et al., 1990; Maheady et al., 1987, 1988; Mastropieri et al., 1998;

Table 1. Systematic Review of Academic Interventions for Students With ED in Inclusive Settings.

| Review area | Authors | Participant selection criteria | Eligible designs | Total no. of studies | Studies in inclusive settings | ES | MS | HS |
|-------------------|----------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------|----------------------|-------------------------------|----|----|----|
| Writing | Losinski, Cuenca-Carlino, Zablocki, and Teagarden (2014) | Students with or at risk of ED in Grades K-12 | Experimental, quasi, single-case | 20 | 0 | — | — | — |
| | Sreckovic, Common, Knowles, and Lane (2014) | Students with or at risk of EBD | Experimental, quasi, single-case | 13 | 0 | — | — | — |
| Reading | Ennis and Jolivet (2014) | Students with or at risk of EBD | Experimental, quasi, single-case | 14 | 0 | — | — | — |
| | Rivera, Al-Otaiba, and Koorland (2006) | Primary grade students with EBD or at risk for anti-social behaviors | Studies investigating effects of reading interventions | 11 | 0 | — | — | — |
| Literacy Outcomes | Benner, Nelson, Ralston, and Mooney (2010) | Students with or at risk of BD | Experimental, quasi, single-case | 24 | 1 (4.1%) | 1 | 0 | 0 |
| | Burke, Boon, Hutton, and Bowman-Perrott (2015) | Secondary students with or at risk of EBD | Single-case | 11 | 0 | — | — | — |
| Math | McKenna, Kim, Shin, and Pannestiel (2017) | Students with or at risk of EBD in Grades K-12 | Single-case | 30 | 1 (3.3%) | 1 | 0 | 0 |
| | Griffith, Trout, Hagaman, and Harper (2008) | Students with EBD | Experimental, quasi, single-case | 17 | 0 | — | — | — |
| Math | Hodge, Riccomini, Buford, and Herbst (2006) | Students with EBD | Quantitative, single-subject | 13 | 0 | — | — | — |
| | Templeton, Neel, and Blood (2008) | School-age children and youth with EBD | Studies with interventions as an independent variable | 14 | 0 | — | — | — |
| Math | Mulcahy, Maccini, Wright, and Miller (2014) | Secondary students with EBD | Group design or single-case | 20 | 1 (5%) | — | — | 1 |
| | Ralston, Benner, Tsai, Riccomini, and Nelson (2014) | Students with or at risk of EBD | Experimental, quasi, single-case | 27 | 0 | — | — | — |
| Math | Mulcahy, Krezmien, and Travers (2016) | Secondary grade students with EBD | Single-case | 19 | 1 (5.2%) | — | — | 1 |

(continued)

Table 1. (continued)

| Review area | Authors | Participant selection criteria | Eligible designs | Total no. of studies | Studies in inclusive settings | ES | MS | HS |
|--------------------------------|--------------------------------------------------|----------------------------------------|----------------------------------------------------------------------|----------------------|-------------------------------|--------|--------|--------|
| Science | Therrien, Taylor, Watt, and Kaldenberg (2014) | Students with EBD in Grades K-12 | Experimental, quasi, single-case | 10 | 2 (20%) | 1 | 1 | 0 |
| Social Studies | No review | — | — | — | — | — | — | — |
| Peer Mediated Interventions | Ryan, Reid, and Epstein (2004) Spencer (2006) | Students with EBD Students with EBD | Experimental, quasi Experimental, quasi, single-case, qualitative | 14 38 | 1 (7.1%) 3 (7.9%) | 0 0 | 0 0 | 1 3 |
| Teacher Mediated Interventions | Pierce, Reid, and Epstein (2004) | Students with ED | Experimental, quasi, single-case | 29 | 0 | — | — | — |
| Totals | | | | 324 | 10 (3.1%) | 3 | 1 | 6 |
| Unique Studies Across Reviews | | | | 181 | 8 (4.4%) | 2 | 1 | 5 |

Note. ED = emotional disturbance; ES = elementary school; MS = middle school; HS = high school; EBD = emotional or behavioral disorder; BD = behavior disorder.

Table 2. Academic Intervention Studies for Students With ED in Inclusive Settings.

| Intervention type | Authors | Participants | Intervention | Interventionists | Findings |
|-------------------|---------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reading | Rafferty (2012) | Four students with ED, two M and two F 7.8 to 8.2 years of age 2nd grade | Time Warp Plus, self-monitoring, tactile prompt | Gen ed 12 years experience B + MA degrees Certified | <ul style="list-style-type: none">• Improved reading fluency• Improved on-task behavior |
| | Wehby, Lane, and Falk (2005) | One M K student with ED | Scott Foresman Reading and PATR | TA with 10 years experience Scott Foresman implemented by gen ed, sped, para, and ELL teacher in small groups RA implemented PATR | <ul style="list-style-type: none">• No effect on nonsense word fluency• Positive effect on letter naming fluency• No effect on onset fluency• Increase in number of problems completed• Improved math test scores• Results for student with ED not disaggregated |
| Mathematics | Prater, Hogan, and Miller (1992) | 14-year-old 9th-grade student with LD and ED | Self-monitoring | Researcher | <ul style="list-style-type: none">• Results for student with ED not disaggregated |
| Science | Mastropieri et al. (1998) | One 4th-grade M with ED | Inquiry-based instruction | Three gen ed and one sped Two 3 years, one 5 years, and one 16 years experience All with B degrees All certified, three with multiple certifications | <ul style="list-style-type: none">• Results not disaggregated for students with EBD |
| | Mastropieri et al. (2006) | Seven 8th-grade students with EBD | Differentiated instruction, peer tutoring, and inquiry-based instruction | Four gen ed and four sped 2.9 years in position on average All certified Four B and four MA Teacher and aide | <ul style="list-style-type: none">• Improved scores on history tests• Results not disaggregated for students with BD |
| Peer Tutoring | Bell, Young, Blair, and Nelson (1990) | Six 15-year-old students with BD, Five M and one F | CWPT | Teachers | <ul style="list-style-type: none">• Results not disaggregated for students with BD |
| | Maheady, Sacca, and Harper (1987) | 28 9th- and 10th-grade mildly handicapped students (LD or BD) | CSTT | Teachers | <ul style="list-style-type: none">• Results not disaggregated for students with BD |
| | Maheady, Sacca, and Harper (1988) | 14 10th-grade students with mild disabilities (LD or BD) | CWPT | Teachers | <ul style="list-style-type: none">• Results not disaggregated for students with BD |

Note. ED = emotional disturbance; M = male; F = female; gen ed = general education teacher; B = bachelor's; MA = master's; TA = teaching assistant; K = kindergarten; PATR = Phonological Awareness Training for Reading; sped = special education teacher; para = paraprofessional; ELL = English Language Learner; RA = research assistant; LD = learning disabilities; EBD = emotional and behavioral disorder; BD = behavior disorder; CWPT = classroom peer tutoring; CSTT = classroom student tutoring teams.

Table 3. WWC Design Standards Coding.

| Study | IV systematically manipulated? | DV measured by more than one assessor? | IOA collected during at least 20% of data points across conditions? | IOA meets minimum thresholds? | Sufficient number of phases based on design? | Sufficient number of data points per condition or phase? | Rating |
|----------------------------------------------------------|--------------------------------|----------------------------------------|---------------------------------------------------------------------|-------------------------------|----------------------------------------------|----------------------------------------------------------|-------------------------|
| Rafferty (2012) | Y | N | N | N | N | N | Does not meet standards |
| Wehby, Lane, and Falk (2005) | Y | Y | Y | Y | N | Y | Does not meet standards |
| Prater, Hogan, and Miller (1992) Math; withdrawal design | Y | Y | Y | N | N | N | Does not meet standards |
| Bell, Young, Blair, and Nelson (1990) | Y | N | N | N | N | Y | Does not meet standards |

Note. WWC = What Works Clearinghouse; DV = dependent variable; IOA = interobserver agreement; Y = yes; N = no.

Mastropieri et al., 2006; Rafferty, 2012). One study (12.5%) used teachers and a research assistant as interventionists (Wehby et al., 2005) and one study (12.5%) used a researcher (Prater et al., 1992). In regard to student outcomes, four (50%) of eight studies did not disaggregate academic outcomes for students with ED (Maheady et al., 1987, 1988; Mastropieri et al., 1998; Mastropieri et al., 2006). As a result, we were unable to determine the degree to which students with ED benefited from interventions in these studies.

Summary of Studies With Disaggregated Outcomes

Four intervention studies meeting selection criteria disaggregated academic outcomes for students receiving special education services for ED or its equivalent. All studies used some type of single-case design. Using a multiple-baseline design, Rafferty (2012) investigated the effects of “Time Warp Plus” (2006) and a self-monitoring procedure on the reading achievement of four students with ED ranging in age from 7.8 to 8.2 years old. Time Warp Plus is an approach that included partner reading fluency practice, graphing of reading performance, whole group instruction in a self-monitoring strategy, and small group center-based activities. The researchers reported improved reading fluency and on-task behavior as the result of the intervention. However, the single-case design did not permit the demonstration of an intervention effect at three different points in time, preventing the ability to make causal inferences in this study. This design only permitted a demonstration of an effect at two points in time. As a result, this study did not meet WWC standards for single-case design studies.

Using a multiple-baseline design, Wehby et al. (2005) investigated the effects of Scott Foresman Reading (Foresman, 2000) and the Phonological Awareness Training for Reading program (Torgesen & Bryant, 1994) on the reading performance of four students in kindergarten with disabilities, including one student with EBD. Results indicated mixed effects on the reading performance of the student with EBD. Although the intervention had a positive effect on letter naming fluency, it had a null effect on nonsense word fluency and onset fluency. This study did not meet WWC design standards due to an insufficient number of phases for a multiple-baseline design.

Using a multi-element design (withdrawal with a nonconcurrent multiple baseline), Prater et al. (1992) investigated the effects of a self-monitoring intervention on the mathematics performance of a 14-year-old ninth grader with LD and ED. In this study, the intervention was first implemented in a resource room classroom and then implemented in general education settings. The researchers report the intervention effective at increasing the number of mathematics problems completed and at improving math test scores.

With regard to WWC coding, this study was analyzed as a withdrawal design rather than a multiple-baseline design due to the presence of a nonconcurrent baseline. According to WWC conventions, nonconcurrent multiple-baseline studies are ineligible for review because they do not permit causal inferences. However, this study did not meet WWC design standards for a withdrawal design due to the absence of IOA data, an insufficient number of phases, and an insufficient number of data points for each phase.

Using a multiple-baseline design, Bell and colleagues (1990) investigated the effects of classwide peer tutoring on the academic performance of six 15-year-old students with BD. This intervention was conducted in two Ancient World Civilization classes. As part of the intervention, students served as both the tutor and tutee and teams were awarded points for following procedures and answering questions correctly. Although the researchers report improved history test scores, this study did not meet WWC single-case design standards due to the absence of IOA data and having an insufficient number of phases.

Discussion

Students receiving special education services for ED often receive a significant amount of instruction in general education classrooms. As a result, teachers assigned to general education classrooms must use instructional practices that are effective for this student population to improve school and transition outcomes (Brigham et al., 2016). The purpose of this study was to conduct a synthesis of syntheses to provide an overview of academic intervention studies for students with ED conducted in general education settings. Furthermore, we sought to identify promising practices for improving the academic achievement of students with ED who are educated in inclusive classrooms. Although the majority of students with ED receive a significant amount of instruction in general education classrooms, study findings suggest that there is little research to guide school practice, teacher preparation, and teacher training.

Findings from this synthesis of syntheses suggest the continued presence of a “practice to research gap.” Various stakeholders refer to the presence of a research to practice gap, which is used to describe the absence or ineffective use of scientifically based practices and interventions in school practice. However, it appears that there is insufficient academic intervention research that is applicable to instruction of students with ED in general education classrooms. Although schools nationally have operationalized federal mandates related to LRE by placing a substantial number of students with ED in general education settings, only eight intervention studies conducted in general education classrooms with academic outcomes were identified. Of these

eight studies, 50% did not provide disaggregated outcomes for students with ED. Furthermore, no studies with disaggregated outcomes permitted causal inferences regarding the introduction of independent variables and changes in academic dependent variables. In sum, there appears to be a substantial disconnect between intervention research and the operationalization of LRE mandates, the academic demands in general education classrooms, and recent judicial clarification regarding the rights and responsibilities associated with FAPE. This dearth of intervention studies conducted in general education classrooms with academic outcomes indicates a dire need for intervention studies with rigorous designs to identify practices that teachers can use to achieve FAPE mandates. Before research can investigate factors that influence the selection and continued use of research-based practices, they must first be identified (Hiss, 2004).

Limitations

Some limitations are associated with this study. First, this investigation focused exclusively on interventions or practices with academic outcomes. The inclusion of intervention studies with behavioral outcomes would have expanded the overall pool of studies. However, we focused on academic outcomes because this is the primary focus of instruction in general education classrooms. Second, we excluded students considered at risk from our analysis. Although this also would have expanded the total number of intervention studies included in this investigation, we were interested in gaining an understanding of the extant research involving students who received special education services for ED and who receive instruction in general education classrooms. Third, this investigation did not include gray literature such as unpublished dissertation studies. However, we chose to only include studies that underwent peer review because this process is the “gatekeeper” for our field (see Mitchell, Adamson, & McKenna, 2017). Last, we relied on published syntheses, reviews, and meta-analyses to identify intervention studies relevant to our investigation. It is likely that there are at least some intervention studies relevant to our research questions that are yet to be included in a published synthesis. However, this study does provide an overview of intervention research and demonstrates that there is insufficient research to guide inclusive instruction for students with ED in Grades K-12.

Implications for School Practice

At this time, it appears that schools must rely on professional judgment rather than research evidence to inform inclusive education for students with ED.

However, federal law mandates that IEP teams consider the full continuum of education placements (Yell, 2016) after determining the specialized services and supports necessary to meet FAPE mandates (Kauffman, 2010; Kauffman & Bader, 2017). Some students with disabilities may not be best served in inclusive settings due to the level of specialization they require to benefit from school (Grosche & Volpe, 2013). Placement (e.g., general education classrooms, self-contained classes, etc.) is the location in which specialized services are provided rather than a specialized service on its own (Stoutjesdijk, Scholte, & Swaab, 2012). Schools should also be reminded that students with disabilities require explicit and intensive intervention to make socially significant gains in school (Fuchs, Fuchs, & Vaughn, 2014; Maggin et al., 2016).

As the majority of interventions conducted in less restrictive settings (e.g., resource rooms) could be considered supplemental to core instruction (e.g., instruction in inclusive classrooms), school-based teams should promote student access to the general education curriculum and development of skills through tiered systems of support (see Fuchs et al., 2014; Stoutjesdijk et al., 2012). Supports should target individual student needs, be based on EBPs, include contingencies for frequent progress monitoring, and use a team-based approach to selecting and monitoring their effectiveness. For those students who receive instruction in general education classrooms, supplemental programs and interventions should focus on addressing essential skills and competencies for success in these settings. As a result, schools need to be resourced and structured in a manner that permits the provision of increasing levels of intensive intervention to those students who require more than core instruction.

Last, school-teams should consider supporting instruction through the provision of professional development with coaching that includes performance feedback (see Fallon, Collier-Meek, Maggin, Sanetti, & Johnson, 2015). Teachers must have substantial expertise to adapt and differentiate instruction for students with disabilities (Kauffman & Bader, 2017). However, providing accommodations on their own is likely to be insufficient for many students with significant learning difficulties (Fuchs et al., 2014) such as students with ED. Students with significant learning difficulties require intensive intervention provided by educators with ample expertise (see Fuchs et al., 2014; Maggin et al., 2016). Thus, efforts to improve teacher knowledge and skill should focus on instructional practices consistent with intensive interventions in addition methods for adapting core instruction.

Areas for Future Research

Findings from this investigation point to four areas for future research. First, there is an urgent need for additional intervention research with academic outcomes involving students with ED in inclusive settings across all grade

levels. Teachers of students with ED and the students themselves require effective practices to address issues related to student performance and teacher retention (Reed, Gable, & Yanek, 2014). Future studies should use designs that permit the disaggregation of outcomes for students with ED. Special education cannot rely on research conducted on students with disabilities in general due to variability within and across disability populations (Sullivan & Sadeh, 2016). Second, study findings suggest a need for intervention research informed by quality indicators such as the WWC to identify practices that promote the achievement of FAPE mandates. Intervention studies conducted in general education classrooms with academic outcomes that permit causal inferences are desperately needed. Third, research should investigate the alignment between student needs, professional expertise, and allocation of resources that is necessary for students with ED to benefit from inclusive placements. Similarly, schools must be able to identify and respond to potential implementation barriers such as changes in education policy, staffing levels and expertise, and resource allocation (Turri et al., 2016). These related lines of research will require strong researcher–practitioner partnerships, which are particularly salient when considering the implementation of complex practices (see Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005) such as inclusive instruction for students with ED. Studies that include observations of teacher instructional practice, stakeholder focus groups, and student academic and behavioral data are necessary to identify the conditions that are necessary for students with ED to profit from inclusive instruction. Furthermore, mixed methods studies can be conducted to identify the manner in which schools exercise their professional judgment when operationalizing inclusive instruction for this student population. Fourth, academic journals should consider publishing intervention studies conducted in inclusive settings that use designs that permit causal inferences and demonstrate null or negligible effects. It is possible that publication bias played a role in the limited number of intervention studies identified in this meta-synthesis. Identifying practices or conditions that are ineffective or insufficient for demonstrating an effect can also be used to inform future intervention research as well as school practice.

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